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10/590,855	08/25/2006	Naohiro Yoshida	129200	4180

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EXAMINER	
SHABMAN, MARK A	

ART UNIT	PAPER NUMBER
2856	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,855	YOSHIDA, NAOHIRO	
	Examiner	Art Unit	
	MARK SHABMAN	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 24 March 2008 have been fully considered but they are not persuasive.

In regards to claim 1, Applicant argues that there is no suggestion in the Rolker or Yanagisawa to include monitoring the pressure within the system with multiple pressure gauges with "different pressure ranges". The argument further concludes that this conclusion can only be reached by hindsight reasoning. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Specifically, the teaching of multiple devices to detect pressure in multiple ranges, while included in the specification of the present application, was in fact well known in the art at the time of invention. The teachings of Yanagisawa regarding the fluctuation of pressure within the airtight room does in fact allow one of ordinary skill in the art to realize the benefits of a second gauge with a different pressure range for the measuring of leaks at a different pressure due simply to the understanding that accuracy at lower pressure levels would be greatly increased by a lower level pressure gauge. While Yanagisawa does not explicitly teach multiple

gauges at different pressure ranges, it does teach the use of multiple gauges and the reasoning as to why multiple ranges would be beneficial.

Applicant further argues that although the Yanagisawa reference teaches evacuating an airtight area in communication with a valve, there is no teaching towards depressurizing the fuel supply channel until the pressure enters a pressure range in which it can be monitored by the pressure monitoring devices. Yanagisawa teaches as seen in column 1 that the target object to be tested is in communication with an airtight room. The room is then evacuated (read "depressurized") and the pressure within monitored by accordingly. While the reference does not specifically state that the room is depressurized to a point where the pressure gauges can monitor it, it is understood that it would be impossible to monitor the pressure within the room if it was above or below the pressure ranges detectable by the gauges.

Regarding the third argument of the remarks, although the specification of the present invention does in fact include the benefits towards accuracy by using a smaller range pressure gauge in the system, the idea of accuracy as it pertains to measured ranges was known in the art. It was known that greater accuracy would be achieved in measuring of small pressures by using a gauge including only small range between minimum and maximum. As one would not use a meter stick to measure millimeters accurately, in a similar manner, one would not use a 500psi pressure gauge to measure 1 or 2 psi accurately.

The following reasoning applies to the remaining independent claims 7 and 8 along with all claims depending therefrom.

By amendment, the previous rejection of claim 2 under 35 U.S.C. 103(a) has been withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rolker US Patent 4,825,198 (hereinafter referred to as Rolker) in view of Yanagisawa US Patent 6,167,749 B1 (hereinafter referred to as Yanagisawa).

Regarding **claim 1**, Rolker discloses a method and apparatus for testing the tightness of two valves arranged in a fluid line. The embodiment as depicted in figure 2 of the drawings comprises a main valve V_1, a second valve located downstream from the first, V_2, between them forming a line 4 which reads on the "gas supply channel" as claimed. There further exists means for monitoring the pressure within line 4 in the pressure sensing device 5 (column 5 lines 34-43). The pressure within line 4 is initially set to a predetermined pressure which is lower than the upstream pressure as described in column 2 lines 1-10 or column 8 lines 46-49, thus the pressure flowing

through would need to be reduced. Rolker does not disclose a "depressurization treatment device" for depressurizing the inside of the supply channel as claimed.

Yanagisawa discloses a method and apparatus for detecting a gas leak in which an airtight area in communication with a valve to be tested is evacuated and pressure readings are subsequently taken (column 1 lines 41-50). The device used for the evacuation is described and seen in figure 1 as an evacuation pump 16 which is located downstream of the valves to be tested V_1-V_5. It would have been obvious to one of ordinary skill in the art at the time of invention to use an evacuation pump such as that in Yanagisawa in the system of Rolker as a "depressurization treatment" device to lower the pressure (depressurize) of the supply channel to the desired pressure for monitoring via means of monitoring devices, without having to introduce any additional elements into the test area which could also leak, causing false results.

Figure 1 of the drawings of Rolker show the controller of the system which is described in detail in column 6 lines 62-69 and summarized in column 2 lines 56-69. This "determination device" allows the line 4 to fill with fluid under pressure and closes all valves V_1, and V_2 in order to take determine the operating state of the valves. Based on the changing pressure of detected by unit 5, the system can determine which, if either, of the valves is leaking.

There only exists a single "pressure monitoring device" in Rolker for determining the pressure of the sealed space. The invention as disclosed by Yanagisawa discloses the use of multiple pressure gauges to measure the pressure at different points. Column 3 lines 37-49 describe the pressure gauges and their ratings as being higher

than the expected highest pressure in the system. Since the pressure can fluctuate, it would have been obvious to one of ordinary skill in the art at the time of invention to use more than a single pressure gauge, with different ranges, in the system to account for higher or lower pressures than average. This would allow for greater precision in the system since using smaller, more accurate ranges to determine even the slightest leaks in the valves.

Regarding **claim 2**, once the pressure in the supply line has been set, the pressure monitoring device is selected to monitor the pressure as claimed. The pressure in the system could be adjusted by the evacuation pump of Yanagisawa which would result in the pressure of the supply channel being "attained by depressurization" as claimed.

Regarding **claim 3**, the process of Rolker describes in the background of the invention a method of determining which valve is leaking by monitoring a pressure of the channel, wherein an increase in pressure determines a leak in the upstream valve and a decrease determines a leak in the downstream valve (column 2 lines 1-11). Further, Rolker states that by setting a limit pressure in the channel, then shutting the valves and taking a reading after a holding time will determine that the upstream valve is tight when the measured pressure is below the limit or the downstream valve is tight when the measured pressure is above the limit (column 8 lines 53-58). This could also be taken as a leak exists in the first valve when the pressure rises to or above the preset limit and a leak exists in the second valve (or supply channel) when the pressure falls to or below the preset limit.

Regarding **claim 4**, the process of Rolker describes in the background of the invention a method of determining which valve is leaking by monitoring a pressure of the channel, wherein an increase in pressure determines a leak in the upstream valve and a decrease determines a leak in the downstream valve (column 2 lines 1-11). Further, Rolker states that by setting a limit pressure in the channel, then shutting the valves and taking a reading after a holding time will determine that the upstream valve is tight when the measured pressure is below the limit or the downstream valve is tight when the measured pressure is above the limit (column 8 lines 53-58). This could also be taken as a leak exists in the first valve when the pressure rises to or above the preset limit and a leak exists in the second valve (or supply channel) when the pressure falls to or below the preset limit.

Regarding **claim 5**, the test fluid in the system of Rolker would have to be disposed of or stored after the testing is complete since it cannot merely disposed of into the air. Yanagisawa shows the test fluid evacuated to a gas disposal plant which would be one form of a "recovery tank" as claimed. Since the gas source is a pressurized tank, it would have been obvious to one of ordinary skill in the art at the time of invention to store the gas in a similar pressurized tank or even return it to the source tank in order to ensure there is enough space for storage. To do this, the gas would have to be compressed and driven back into the tank. A number of compressors could be used, including a turbine compressor with a pump to fill/refill the tank.

Regarding **claim 6**, the "shutdown valve" and "main valve" of the system would need to be closed during the depressurization of the system in order to maintain the predetermined lower pressure for testing as described previously.

Regarding **claim 7**, Rolker discloses a method and apparatus for testing the tightness of two valves arranged in a fluid line. The embodiment as depicted in figure 2 of the drawings comprises a main valve V_1, a second valve located downstream from the first, V_2, between them forming a line 4 which reads on the "gas supply channel" as claimed. There further exists means for monitoring the pressure within line 4 in the pressure sensing device 5 (column 5 lines 34-43). The pressure within line 4 is initially set to a predetermined pressure which is lower than the upstream pressure as described in column 2 lines 1-10 or column 8 lines 46-49, thus the pressure flowing through would need to be reduced. Rolker does not disclose a "depressurization treatment device" for depressurizing the inside of the supply channel as claimed.

Yanagisawa discloses a method and apparatus for detecting a gas leak in which an airtight area in communication with a valve to be tested is evacuated and pressure readings are subsequently taken (column 1 lines 41-50). The device used for the evacuation is described and seen in figure 1 as an evacuation pump 16 which is located downstream of the valves to be tested V_1-V_5. It would have been obvious to one of ordinary skill in the art at the time of invention to use an evacuation pump such as that in Yanagisawa in the system of Rolker as a "depressurization treatment" device to lower the pressure (depressurize) of the supply channel to the desired pressure for monitoring

via means of monitoring devices, without having to introduce any additional elements into the test area which could also leak, causing false results.

Figure 1 of the drawings of Rolker show the controller of the system which is described in detail in column 6 lines 62-69 and summarized in column 2 lines 56-69. This "determination device" allows the line 4 to fill with fluid under pressure and closes all valves V_1, and V_2 in order to take determine the operating state of the valves. Based on the changing pressure of detected by unit 5, the system can determine which, if either, of the valves is leaking.

There only exists a single "pressure monitoring device" in Rolker for determining the pressure of the sealed space. The invention as disclosed by Yanagisawa discloses the use of multiple pressure gauges to measure the pressure at different points. Column 3 lines 37-49 describe the pressure gauges and their ratings as being higher than the expected highest pressure in the system. Since the pressure can fluctuate, it would have been obvious to one of ordinary skill in the art at the time of invention to use more than a single pressure gauge, with different ranges, in the system to account for higher or lower pressures than average. This would allow for greater precision in the system since using smaller, more accurate ranges to determine even the slightest leaks in the valves.

Regarding **claim 8**, the method of Rolker involves providing two valves (i.e. a main valve and a shutdown valve), closing said valves and presetting a limit pressure in between the two valves (column 8 lines 53-58). The preset limit is described as being

approximately half of the upstream pressure. There is no specific method used for depressurization of the supply channel mentioned in the disclosure.

Yanagisawa discloses a method and apparatus for detecting a gas leak in which an airtight area in communication with a valve to be tested is evacuated and pressure readings are subsequently taken (column 1 lines 41-50). The device used for the evacuation is described and seen in figure 1 as an evacuation pump 16 which is located downstream of the valves to be tested V_1-V_5. It would have been obvious to one of ordinary skill in the art at the time of invention to use an evacuation pump such as that in Yanagisawa in the system of Rolker as a "depressurization treatment" device to lower the pressure of the supply channel to the desired pressure to allow for a pressure reduction without having to introduce any additional elements into the test area which could also leak, causing false results. Running the pump while the valves are being shut would allow for the pressure to lower inside the "sealed space" to a desired point before closing the shutdown valve and beginning pressure measurements.

By allowing the system to rest for a set amount of time, a variation of pressure may be monitored in between the "main valve" and "shutdown valve" after they have both been closed as claimed. The "operation state" of the main valve can then be determined as described in column 8 lines 53-58 or column 2 lines 1-11. The predetermined pressure as described in the background would be the point at which the shutdown valve is shut and the "sealed space is depressurized to a pressure range in which the pressure can be detected in a pressure sensor" since at this point the pressure sensor would be used to determine the pressure within the sealed space.

Regarding **claim 9**, the invention as disclosed by Yanagisawa discloses the use of multiple pressure gauges to measure the pressure at different points. Column 3 lines 37-49 describe the pressure gauges and their ratings as being higher than the expected highest pressure in the system. Since the pressure can fluctuate, it would have been obvious to one of ordinary skill in the art at the time of invention to use more than a single pressure gauge in the system to account for higher or lower pressures than average. This would allow for greater precision in the system since using smaller, more accurate ranges to determine even the slightest leaks in the valves.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK SHABMAN whose telephone number is

(571)270-3263. The examiner can normally be reached on M-F 7:30am - 5:00pm, EST (Alternating Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. S./
Examiner, Art Unit 2856
/Hezron Williams/
Supervisory Patent Examiner, Art Unit 2856